COST ANALYSIS OF STANDARD OPERATING PROCEDURES IN COMMUNITY PHARMACIES

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Abstract

Objective The objectives were to compile Standard Operating Procedures (SOPs) for processes undertaken in community pharmacies and to assess and compare the financial implications of implementing these SOPs.

Method Two community pharmacies of different sizes were identified using purposive sampling. Eighty hours of non-participant and participant observation were conducted in both pharmacies and 5 SOPs were compiled. The 5 SOPs compiled were: Temperature Monitoring and Control, Inward Order: Specified Drugs for Dangerous Drugs (DDA), Inward Order: Cold Chain Product, Housekeeping and Pest Control. The SOPs were psychometrically evaluated for content validity by a focus group. Readability of the SOPs was tested by means of the Gunning Fog Index. The capital, recurrent and total expenditure involved for implementing each SOP in the two pharmacies were calculated and compared.

Key findings The average Gunning Fog Index was 14.73 years. This index gives an indication of number of years of education that a person needs to be able to understand the text easily on the first reading. Total expenditure for implementing the SOPs was expected to be higher in the larger pharmacy (pharmacy B) than in the smaller pharmacy (pharmacy A). This was confirmed for 3 of the 5 SOPs compiled.

Conclusion The cost for implementing the majority of the SOPs for both pharmacies was negligible and most probably their implementation would have a minimal financial impact on the profit of pharmacy.

Keywords Standard Operating Procedures, community pharmacy, financial impact.

Introduction

Standard Operating Procedures

Standard Operating Procedures (SOPs) are authorised, written procedures giving instructions for performing particular operations. They are not necessarily specific to a given product but are of a more general nature (e.g. equipment operation, maintenance and cleaning, validation, cleaning of premises and environmental control, sampling and inspection).[1]

Within the hospital and community practice, an example of the implementation of SOPs in is taken from the UK. In the United Kingdom, the Royal Pharmaceutical Society of Great Britain required that as from January 2005, hospital and community pharmacists develop and implement SOPs covering the dispensing process for each individual pharmacy. This was done to assure clinical governance compliance within the pharmacy setting.[2]

In Malta, the Licensing Authority does not yet impose a requirement on community pharmacies to develop and implement SOPs, although the development of SOPs may be fruitful to community pharmacies to ensure standard processes particularly when locums are engaged.

Benefits of SOPs

There are a number of benefits for the development of SOPs in community pharmacies.[2] SOPs guide pharmacy personnel on how and when to carry out a specific procedure systematically whilst defining persons responsible and accountable for the procedure. They enable the pharmacist to delegate tasks, freeing up time for the development of other services. SOPs provide an opportunity to fully utilise the expertise of all members of staff and improve team work within the pharmacy. SOPs assure quality and consistency of service between current staff, locums and part timers and provide a useful tool in training students and new personnel. SOPs ensure that Good Pharmacy Practice is consistently achieved and maintained, ensure ethical and legal compliance and continual improvement of standards of service. SOPs provide evidence of commitment towards patient's safety and contribute to audit processes. SOPs provide a contribution to the audit process. The basic components of an SOP are depicted in Table 1.

SOPs assure quality and consistency of service between current staff, locums and part timers and provide a useful tool in training students and new personnel.

Name, address and contact details of the pharmacy	Objective
Title	Scope
SOP number	Responsibility
Date of preparation, approval and authorisation	Equipment
Version number	Procedure
Page number	Revision history
Distribution areas	Appendices
Abbreviations	Name and signature of the persons who prepared, approved and authorised the SOP
Definitions	Review date

Table 1: Basic components of SOPs

Cost Analysis of SOPs in Community Pharmacies

Whilst SOPs are a fundamental aspect in achieving Good Pharmacy Practice in community pharmacies at the same time healthcare providers all around the world are faced with severe resource constraints. Resources need to be used as efficiently and effectively as possible and any new procedures introduced need to be also analysed in this light. The optimal use of resources requires clear and accurate information on resource flow and on the impact that resources have on the quality and performance of health services. Collection and analysis of data on costs required to implement the SOPs can provide considerable useful information to the health services provider.[3]

The aims of this study were to develop, validate and implement SOPs for two community pharmacies of different size and to assess and compare the financial implication involved in implementing these SOPs.

Method

Sampling

Two community pharmacies of different sizes were recruited through purposive sampling. The inclusion criteria for the pharmacies were that they had to operate using a regular rota of locum pharmacists and have similar ways of performing the procedures studied.

After permission was granted by pharmacy owners, the managing pharmacist of each pharmacy chosen was contacted, briefed about the aims of the study and asked permission to conduct the study in the pharmacy. Eighty hours were spent in each pharmacy conducting non-participant and participant observation, to observe how procedures were being performed in each pharmacy. The investigator interacted also with locum pharmacists, other pharmacy personnel including housekeeping personnel and personnel handling pest control procedures.

SOP Title	Sections
SOP TMP 001 **Temperature Monitoring and Control**	Digital Room and Refrigerator Thermometer set-up Temperature Monitoring Register Entry Temperature Control Thermometer Calibration Record Keeping
SOP DDA 002 **Inward Order: Specified Drugs (DDA)**	Delivery of Order Rejecting Order Accepting Order Storage Registry Entry Record Keeping
SOP CCP 003 **Inward Order: Cold Chain Product**	Delivery of Order Rejecting Order Accepting Order Power Failure
SOP HSC 004 **Housekeeping**	Cleaning of Shelves, Floors and Toilet Facilities Cleaning the Refrigerator Defrosting the Refrigerator Register Entry Record Keeping
SOP PSC 005 **Pest Control**	Appointment Treatment Report Record Keeping

Table 2: The different sections for the developed SOPs

SOPs Developed

Following an extensive literature review on SOPs and the non-participant and participant observation in the selected community pharmacies, 5 SOPs were developed. Due to variations in the work patterns of the community pharmacies included in the study, SOPs found in the literature could not be used and new SOPs had to be developed. The SOPs were developed using the 'Community Pharmacy SOP Template' by developed by Briffa.[4] Each SOP was assigned a unique SOP Number consisting of the term 'SOP' followed by three letters, three digits and a title. The SOPs compiled are listed in Table 2. The procedure of each SOP was composed of a number of sections (Table 2).

The SOPs were psychometrically evaluated for content validity by a focus group composed of the SOP expert, a managing pharmacist, a locum pharmacist and sales and cleaning personnel. The qualitative technique of semi-structured interviewing was adopted during the validation.

The readability of the SOPs was calculated by an online software tool, 'Readability Calculator'. For each section of the procedure the 'Gunning Fog Index', 'Coleman Liau Index', 'Flesch Kincaid Grade Level', 'Automated Readability Index' (ARI)' and 'Simple Measure of Gobbledygook' (SMOG) were calculated. Basic text statistics were also calculated including number of characters, words, sentences average number of characters per word, syllables per word and words per sentence.

SOPs Distribution

The final version of the SOPs was distributed to all the relevant pharmacy staff members. Subsequently the personnel were asked to review and familiarise themselves with the SOPs and then members of staff were observed carrying out the procedure according to the SOP and time taken was recorded.

SOP Title	PHARMACY A TOTAL EXPENDITURE (EURO)	PHARMACY B TOTAL EXPENDITURE (EURO)
SOP DDA 002 Inward Order: Specified Drugs	0.32	0.39
SOP CCP 003: Inward Order: Cold Chain Product	11.10	24.18

Table 4: Expenditure for inward orders procedures for pharmacy A and B

Data Collection

The capital and recurrent cost and total expenditure involved for implementing each SOP in the two pharmacies were calculated and compared. Total expenditure per pharmacy for 'SOP TMP 001 – Temperature Monitoring and Control', 'SOP HSC 004 – Housekeeping' and 'SOP PSC 005 – Pest Control' was calculated on a yearly basis.

The recurrent cost of pharmacist time per pharmacy for 'SOP DDA 002 - Inward Order: Specified Drugs (DDA)' and 'SOP CCP 003 - Inward Order: Cold Chain Product' was calculated per procedure.

Pharmacist time was calculated by timing pharmacists performing the procedure on three different occasions and calculating an average. The cost involved was estimated by multiplying the amount of time spent on the activity by the pharmacist's salary.

Results

The average 'Gunning Fox Index' was 14.73 years, indicating good readability. For the inward order SOPs, the cost of implementing the SOPs for each process was higher in Pharmacy B, which was a larger pharmacy (Table 4). The same difference was also noticed in the yearly costs required for the housekeeping SOP (Figure 1).

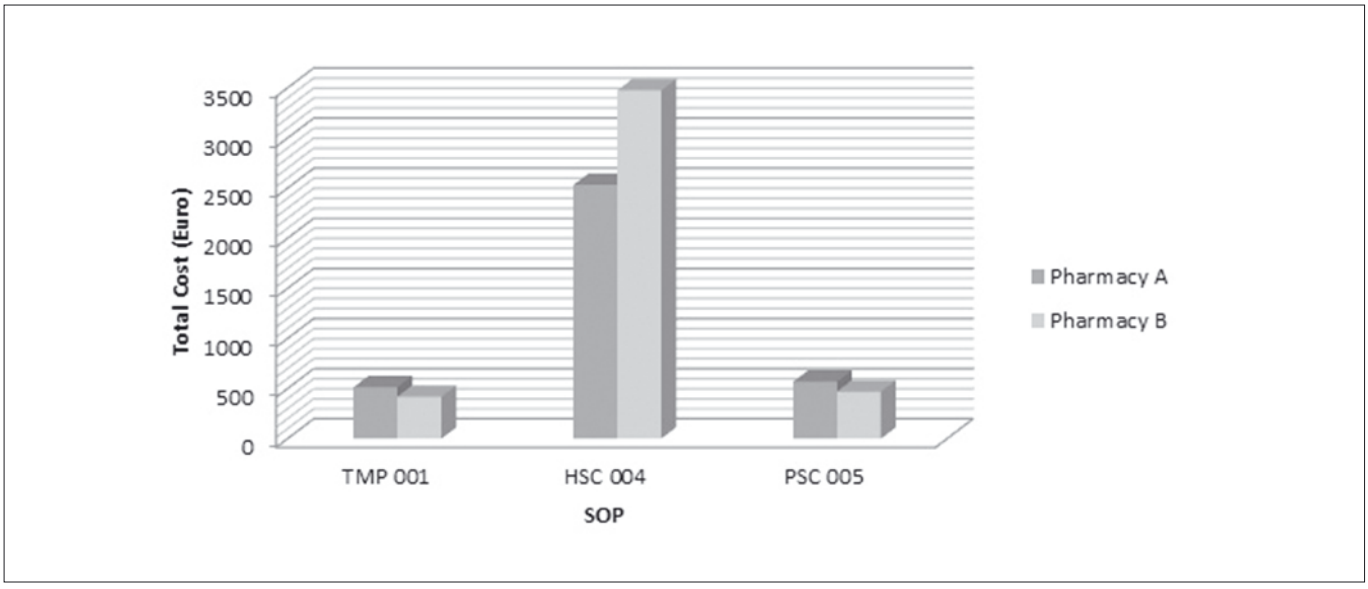

Figure 1: Total yearly expenditure for SOPs of temperature control, housekeeping and pest control

Discussion

The 'Gunning Fog Index' was found to be adequate as all the pharmacy personnel were over 20 years of age. The recurrent cost of pharmacist time was slightly higher for pharmacy B than for pharmacy A. This was expected since pharmacy B is a larger pharmacy and has the higher workload; therefore the pharmacist needs more time to complete the procedures.

The cost of housekeeping per procedure was the same for both pharmacies. However, the annual cost was different since in the smaller pharmacy, housekeeping procedures were carried out twice a week while in the larger pharmacy housekeeping procedures were carried out three times a week. The cost for pest control procedures were the same for both pharmacies. The difference in the total area of the pharmacy did not have an impact on the cost of the procedure.

Limitations of the study were the small sample size, and the non-probability sampling technique adopted which limits generalisability of the results beyond the population studied. The study period was short, and therefore costs for a one year period were extrapolated.

Conclusion

The cost for implementing the majority of the SOPs for both pharmacies was negligible and their implementation would have a minimal financial impact on the profit of pharmacy. The SOP that contributed to the highest yearly costs particularly in Pharmacy B was the Housekeeping SOP. SOPs for other procedures need to be developed particularly for processes related to the Pharmacy of Your Choice Scheme.

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